TA201A Project – WG5
Iron Man Helmet

Course Instructor:	Dr Niraj Chawake
Lab In-charge:	Mr. Anil Kumar Verma
Tutor:	Dr. Sudhanshu Shekhar Singh
Course Staff In-charge:	Mr. Indra Pal Singh

Group Members:

Omkar Chavan
Chinmay Pratap
Deepak Mundari
Deepak Singh
Deevakshi Sonawane
Devabrata Bothra
Deven Joshi
Devesh Pandita
Devendra Jangir
Dhananjay Chimnani

INDEX

Introduction..... 2
Motivation 3
Acknowledgments..... 4
Work Distribution..... 5
Parts' List..... 6
Drawings.....7
- Isometric Drawing.....8
- Face Plate.....9
- Top Plate.....10
- Rear Plate 11
- Ear Plate.....12
- Jaw.....13
- Face Plate Support..... ..14

Introduction

Iron Man is a superhero appearing in American comic books published by Marvel Comics. The character has been adapted for several animated television shows and films, the most popular being the Marvel Cinematic Universe, where Tony Stark was portrayed by Robert Downey Jr. We, the members of group 5 are all Marvel fans and have always been fascinated by the iron man helmet. It's a symbol of excellence and a beacon of hope in the MCU and Comics. The Iron Man movies are a big reason for our becoming mechanical engineers. Seeing Tony Stark build the first Iron Man suit in a cave with a box of scraps got us all entangled in the intricacies of engineering. In fact, it's what got a lot of students interested in mechanics and continues to do so even today Therefore, this is our small tribute to the legacy of iron man by trying to replicate the helmet of his fifth suit, the Mark 5.

Keeping this in mind, we have built the Mark 5 helmet with a hinge mechanism, allowing for the face plate to be lifted up. The helmet consists of a total of 6 major parts made of mild steel joined together by either welding or brazing. We have applied the knowledge acquired through TA201 in this project and have put our skills to the test in trying to build the best possible rendition of the Mark 5 Helmet.

Motivation

Our project is to make an iron man helmet. In this project, we can use all knowledge which we learned in TA201 labs from TAs. We will learn many techniques along with the materials used to make this complex project and we will also learn to use some specific tools in this project.
It is our first project in real life and it will give us a lot of experience and we will get a lot of pleasure in making this project as we are learning new fascinating techniques.

Acknowledgments

We sincerely express our gratitude to our tutor, Dr. Sudhanshu Shekhar Singh and our MSE laboratory in-charge, Mr. Anil Kumar Verma for their valuable support and advice in this project. Without their moral and technical support, we would not have been able to complete this effortful task.

We would like to express our gratitude toward all lab staff for their constant supervision and encouragement which helped us in the completion of this project**.**

Special thanks to our TAs, Mr. Irfan Ali and Satabhisha Ghosh for giving us their valuable time.

Overall, we thank our instructor-in-charge, Dr Niraj Chawake, for providing us with good opportunity to learn, explore and make something useful project using the different manufacturing processes.

Work Distribution

Members	Week I	Week II	Week III	Week IV	Week V	Week VI
Omkar Chavan	Sheet Cutting (Part 1)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Hinge Mechanism	Hinge Mechanism	Assembly/ Finishing
Chinmay Pratap	Sheet Cutting (Part 1)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Hinge Mechanism	Hinge Mechanism	Assembly/ Finishing
Deepak Mundari	Sheet Cutting (Part 2)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Hinge Mechanism	Hinge Mechanism	Assembly/ Finishing
Deepak Singh	Sheet Cutting (Part 2)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Hinge Mechanism	Hinge Mechanism	Assembly/ Finishing
Deevakshi Sonawane	Sheet Cutting (Part 3)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Hinge Mechanism	Hinge Mechanism	Assembly/ Finishing
Devabrata Bothra	Sheet Cutting (Part 5)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Jaw-Rear Assembly	Jaw-Rear Assembly	Assembly/ Finishing
Deven Joshi	Sheet Cutting (Part 5)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Jaw-Rear Assembly	Jaw-Rear Assembly	Assembly/ Finishing
Devesh Pandita	Sheet Cutting (Part 4)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Jaw-Rear Assembly	Jaw-Rear Assembly	Assembly/ Finishing
Devendra Jangir	Sheet Cutting (Part 6)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Jaw-Rear Assembly	Jaw-Rear Assembly	Assembly/ Finishing
Dhananjay Chimnani	Sheet Cutting (Part 6)	Sheet Metal Forming of the part	Sheet Metal Forming of the part	Jaw-Rear Assembly	Jaw-Rear Assembly	Assembly/ Finishing

Parts' List

Part No.	Name	Material Required	Quantity	Process Used
1	Face Mask Plate	MS Sheet (0.7mm)	1	Sheet Metal Forming, Welding/brazing
2	Top Plate	MS Sheet (0.7mm)	1	Sheet Metal Forming, Welding/brazing
3	Rear Plate	MS Sheet (0.7mm)	1	Sheet Metal Forming, Welding/brazing
4	Ear Plate	MS Sheet (0.7mm)	2	Sheet Metal Forming, Welding/brazing
5	Jaw	MS Sheet (0.7mm)	1	Sheet Metal Forming, Welding/brazing
6	Face Plate Support	MS Sheet (0.7mm)	1	Sheet Metal Forming, Welding/brazing

Drawings